REMARKS

In an Office Action dated October 6, 2004, the Examiner states that the oath or declaration is defective and therefore not present in the file. The Examiner objects to the disclosure as having formatting errors, specifically with regard to the equations and Greek symbols. The Examiner rejects pending claims 1-16 as being unpatentable as obvious over prior art references. In response, Applicant files the present Reply with Amendment and Remarks. Entry and consideration hereof are respectfully requested.

The Examiner's particular rejections are now addressed in turn.

Oath/Declaration

The Examiner asserts the oath or declaration is defective because there is no oath or declaration present in the file. Specifically, that a new oath in compliance with 37 C.F.R 1.67(a) is required. 37 C.F.R. 1.67(a) addresses the need of a supplemental oath or declaration to correct any deficiencies or inaccuracies present in the earlier filed oath or declaration. Referenced section MPEP 602.01 further details a new oath or declaration is required because the wording of an oath or declaration cannot be amended or changed in any manner after it is signed. As presented in the Petition under 37 C.F.R. 1.182 filed December 18, 2001, and granted in the decision on the petition, the Declaration /Power of Attorney as submitted in the application is correct and accurate. There were no deficiencies or inaccuracies present that were in need of correction, nor was the wording amended or changed in any manner. Therefore, there is no requirement for a new oath in the present application as there is an oath or declaration present in the file. Accordingly, Applicant respectfully requests withdrawal of the finding that the declaration is defective.

Specification

The Examiner asserts that the disclosure of the specification is objected to as having formatting errors, especially with regard to the equations and Greek symbols. Specifically, that symbols are not in line with the text ("~" on page 7, line 13) and various instances of the symbol "ϵ" which are difficult to read (page 6, line 2 as an example). Applicant herein amends the specification after reviewing the text for formatting and legibility of the equations and symbols.

Claim Rejections – 35 U.S.C. §103(a)

Claims 1-2, 4-5 and 7-8 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 5,912,993 to Puetter (hereinafter "Puetter") in view of U.S. Patent No. 5,457,639 to Ulich (hereinafter "Ulich").

In response, as will be shown herein, independent claim 1 is novel and non-obvious over the cited references and is thus allowable. Dependent claims 2, 4-5 and 7-8 are correspondingly allowable as variously depending upon allowable claim 1.

Independent claim 1 recites a method of reconstructing a signal from a given set of data, *inter alia*, altering the coordinate basis of the data and signal from an original coordinate basis in order to produce a prediction function having a reduced set of variables.

Puetter does not teach or suggest a method of reconstructing a signal from a given set of data comprising altering the coordinate basis of the data and signal from an *original coordinate basis* in order to produce a prediction function having a reduced set of variables as recited in claim 1. Instead, Puetter describes a method for identifying a generalized image cell as an optimal basis for image reconstruction and Bayesian estimation of an encoded signal when the underlying signal can be localized. (Col. 2, lines 6 to Col. 3, line 6) The generalized process illustrated in Figure 1 shown detector means 2 collects input data 4. (Col. 4, lines 13-21) The data 4 is fed into the Goodness of Fit (GOF) maximizer 6, in which the probability of the data given the image model (p(D|I,M)) is maximized to produce an image 8. *Id.* This image 8, along with any other prior information, is used to update the pixon map at pixon calculator 10 and thereby improve the image prior (p(I|M)). *Id.* The process flow of Figure 1 shows the pixon map at pixon calculator 10 continually updated by the image 8, pixon calculator 10 and GOF Maximizer 6 loop. That is, the map used as part of the reconstructions is altered. The *original data* 4 is not altered once the process flow beings from the detector 2. Puetter always assumes that the input data (D) is *fixed.* (Col. 4, lines 48-54) Having made this assumption, Puetter then adapts the image and model (I and M) to maximize the "goodness of fit" (GOF) as described above.

The Examiner asserts in the present Office Action, that changing the number of degrees of freedom inherently changes the coordinate basis since said coordinate basis uses a reduced set of variable, and thus a reduced set of variables. Applicant respectfully disagrees. While Puetter attempts to reduce the degrees of freedom (Col. 7, lines 8-12), the effect in

terms of reduction is actually limited by the fact that is no consideration of the possibility of changing the coordinate basis of the *underlying data*, rather through adaptation of the model used as part of the reconstruction as discussed above. That is, there is no consideration to the alteration of the *data that is the input*. Therefore, Puetter does not teach or suggest altering the coordinate basis of the data and signal from an *original coordinate basis*, as recited in claim 1. Instead, Puetter assumes fixed input data without any consideration or description of altering the input data.

In the outstanding office action, the Examiner asserts that while Puetter does not expressly disclose that said Bayesian reconstruction is capable of negative and complex signal values, Ulich is capable of operation of negative and complex signal values. Specifically, that it would have been obvious to compute the Bayesian reconstruction of negative and complex signal values.

As discussed above, Puetter does not teach or suggest altering the coordinate basis of the data and signal from an *original coordinate basis*, as recited in claim 1. Instead, Puetter assumes fixed input data without any consideration or description of altering the input data. Ulich does not teach or suggest altering data. Although Ulich is capable of negative and complex signal values, it does not correct the deficiencies of Puetter. Therefore, it would not be obvious to combine Puetter with Ulich.

To establish a *prima facie* case of obviousness, it is known that three basic criteria must be met: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference(s) must teach or suggest all the claim limitations. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1996).

As discussed above, the relied upon references do not teach or suggest all of the limitations of claim 1. Thus, *prima facie* obviousness does not exist regarding amended claim 1 with respect the Puetter or Ulich patents.

Additionally, since the relied-upon references fail to teach or suggest all of the limitations of claim 1, clearly, one of ordinary skill at the time of Applicant's invention

would not have had a reasonable likelihood of success in forming the claimed invention by the Examiner's proposed combination. Thus, here again, *prima facie* obviousness is unfounded. *Id.*

Thus, the requirements of *prime facie* obviousness are not met by the Examiner's 35 U.S.C. 103(a) rejection of claim 1. Accordingly, reconsideration and withdrawal of the outstanding rejection of claim1 is respectfully requested. Claim 1 is not further rejected or objected to and is thus allowable to Applicant. As claims 2, 4-5 and 7-8 variously depend from allowable claim 1, they are correspondingly allowable.

Claim 3 is rejected under 35 U.S.C. 103(a) as being obvious over Puetter in view of Ulich and U.S. Patent No. 5,576,548 to Clarke (hereinafter "Clarke"). Specifically, that it would have been obvious to use a wavelet basis, as taught by Clarke, instead of the Fourier basis taught by Ulich.

Claims 6, 10-12 and 15 are rejected under 35 U.S.C. 103(a) as being obvious over Puetter in view of Ulich and U.S. Patent No. 4,099,179 to Hofstein (hereinafter "Hofstein"). Specifically, that it would have been obvious to use a pixels, that are of a constant, even size and evenly spaced in a rectangular grid, radar or sonar signals as the input signal or a communication signal as the signal to process, as taught by Hofstein.

Claims 13 and 16 are rejected under 35 U.S.C. 103(a) as being obvious over Puetter in view of Ulich, Hofstein and U.S. Patent No. 5,226,019 to Bahorich (hereinafter "Bahorich"). Specifically, that it would have been obvious to specifically acquire and process geophysical data or specifically use a time-series signal, as taught by Bahorich.

Claims 9 and 14 are rejected under 35 U.S.C. 103(a) as being obvious over Puetter in view of Ulich and U.S. Patent No. 5,252,922 to Larson (hereinafter "Larson"). Specifically, that it would have been obvious to specifically process medical image data and specifically use spectroscopic imaging, as taught by Larson.

Claims 3, 6 and 9-16 variously depend from independent claim 1. As discussed above, independent claim 1 is novel and non-obvious over the cited references, Puetter and Ulich, and is thus allowable. Therefore, claims 3, 6 and 9-16 are correspondingly allowable as variously depending upon allowable claim 1.

No new matter is added by way of the present Amendment and Remarks as support is found throughout the originally filed specification and claims. Withdrawal of all rejections and prompt issuance of a Notice of Allowance is respectfully requested.

The Examiner is invited to contact Applicant's attorney at the below-listed phone number regarding this Response or otherwise concerning the present application.

Applicant hereby petitions for any necessary extension of time required under 37 C.F.R. §§1.136(a) or 1.136(b) which may be required for entry and consideration of the present Reply.

If there are any charges due with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicant's attorneys.

Respectfully submitted,
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